

Application No. 09/440,928

Attorney Docket 040301-0578

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Currently Amended) The semiconductor device of claim [[1]] 23, wherein the first region of the gate electrode has a composition ratio of the second group IV element gradually reduced in accordance with a distance from the insulating gate film.

3. (Currently Amended) The semiconductor device of claim [[1]] 24, wherein the first region of the gate electrode has a composition ratio of the second group IV element stepwise reduced in accordance with a distance from the insulating gate film.

4. (Canceled)

5. (Currently Amended) The semiconductor device of claim [[4]] 25, wherein the first group IV element of the gate electrode is Si (silicon), the second group IV element of the gate electrode is Ge (germanium), and the first silicide electrode is composed of CoSi_y or TiSi_y layer which is substantially free from Ge.

5. (Previously Presented) The semiconductor device of claim 5, wherein the first region of the gate electrode has a thickness larger than a width of a depletion layer of the gate electrode that includes Si.

6. (Previously Presented) The semiconductor device of claim 6, wherein a composition ratio of Ge of the first region of the gate electrode is at least 0.1 or larger.

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8. (Previously Presented) The semiconductor device of claim 7, wherein the gate electrode contains at least B (boron).

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9. (Previously Presented) The semiconductor device of claim 7, wherein the gate electrode contains at least As (arsenic).

10. (Currently Amended) The semiconductor device of claim [4] 28, wherein the first group IV element of the gate electrode is Si, the second group IV element of the gate electrode is C (carbon), and the first silicide electrode is composed of a CoSi_y or TiSi_y layer which is substantially free of C.

11-15 (Canceled)

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11. (Currently Amended) The semiconductor device of claim [15] 23, wherein the ~~semiconductor region~~ elevated electrode is a source or drain electrode of the insulated gate field effect transistor, and the an epitaxial growth layer is an elevated source or drain electrode.

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12. (Currently Amended) The semiconductor device of claim 16, wherein the first group IV element third group IV element of the elevated source or drain electrode is Si, the second group IV element fourth group IV element of the elevated source or drain electrode is Ge, and the second silicide electrode is made of a CoSi_y or TiSi_y layer which is substantially free from Ge.

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13. (Currently Amended) The semiconductor device of claim 17, wherein a composition ratio of Ge in the first third region of the elevated source or drain electrode is at least 0.1 or more, and a thickness of the first third region is at least 2nm from the semiconductor region the main electrode.

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19. (Currently Amended) The semiconductor device of claim 18, wherein the elevated source or drain electrode contains at least B.

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20. (Currently Amended) The semiconductor device of claim 18, wherein the elevated source or drain electrode contains at least As.

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21. (Currently Amended) The semiconductor device of claim 16, wherein the first group IV element third group IV element of the elevated source or drain electrode is Si, second group IV element fourth group IV element of the elevated source or drain electrode is C, and the second silicide electrode made of a CoSi_y or TiSi_y layer which is substantially free from C.

22.

(Canceled)

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23. (Previously Presented) A semiconductor device comprising:

an insulated gate field effect transistor having a pair of main electrodes used as source and drain electrodes, a channel forming region provided between the pair of main electrodes, an insulating gate film formed on the channel forming region, and a gate electrode formed on the insulating gate film, and provided with a first region including a first group IV element and a second group IV element and formed in contact with the insulating gate film, and a second region including the first group IV element and formed on the insulating gate film ^{over and in contact with} via the first region, the first and second regions having an identical conductivity type;

an elevated electrode formed on the main electrodes, and having a third region including a third group IV element and a fourth group IV element and a fourth region formed ^{over and in contact with} on the main electrode via the third region and including the third group IV element;

a first silicide electrode formed in contact with the second region of the gate electrode, and being substantially free from the second group IV element; and

a second silicide electrode formed in contact with the fourth region of the elevated electrode, and being substantially free from the fourth group IV element.

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24. (Canceled)

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25. (Currently Amended) The semiconductor device of claim [[1]] 22, wherein a layer is added between the insulating gate film and the first region of the gate electrode, the larger is thinner than the first region, and is composed of the first group IV element or the second group IV element.

26-28 (Canceled)

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(Previously Presented) The semiconductor device of claim 25, wherein a thickness of the layer is approximately 1nm or less.

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30-31 (Canceled)

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32. (Previously Presented) A semiconductor device comprising:

a first conductivity type insulated gate field effect transistor having a pair of first conductivity type main electrodes used as source and drain electrodes, a second conductivity type channel forming region provided between the pair of first conductivity type main electrodes, a first insulating gate film formed on the second conductivity type channel forming region, and a first gate electrode formed on the first insulating gate film, and provided with a first region including a first group IV element and a second group IV element and formed in contact with the first insulating gate film, and a second region including the first group IV element and formed on the first insulating gate film ^{very} ~~via~~ ^{and in center with} the first region, the first and second regions having an identical conductivity type; and

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a second conductivity type insulated gate field effect transistor having a pair of second conductivity type main electrodes used as source and drain electrodes, a first conductivity type channel forming region provided between the pair of second conductivity type main electrodes, a second insulating gate film formed on the first conductivity type channel forming region, and a second gate electrode formed on the second insulating gate film, and provided with a third region including the first group IV element and the second group IV

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element and formed in contact with the second insulating gate film, and a fourth region ^{over and in contact with} including the first group IV element and formed on the second insulating gate film via the third region, the third and fourth regions having the identical conductivity type.

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33-35 (Canceled)

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36. (New) The semiconductor device of claim 32, wherein the first region of the first gate electrode and the third region of the second gate electrode has a composition ratio of the second group IV element gradually reduced in accordance with a distance from the insulating gate film.

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37. (New) The semiconductor device of claim 32, wherein the first region of the first gate electrode and the third region of the second gate electrode has a composition ratio of the second group IV element stepwise reduced in accordance with a distance from the insulating gate film.

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38. (New) The semiconductor device of claim 32, wherein the first group IV element of the first and second gate electrodes is Si, and the second group IV element of the first and second gate electrodes is Ge.

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39. (New) The semiconductor device of claim 32, wherein the first group IV element of the first and second gate electrodes is Si, and the second group IV element of the first and second gate electrodes is C.

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40. (New) The semiconductor device of claim 32 further comprising:
 a first silicide electrode formed in contact with the second region of the first gate electrode, and being substantially free from the second group IV element; and
 a second silicide electrode formed in contact with the fourth region of the second gate electrode, and being substantially free from the second group IV element.

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41. (New) The semiconductor device of claim 40, wherein the first group IV element of the first and second gate electrodes is Si, the second group IV element of the first and second gate electrodes is Ge, and the first and second silicide electrodes are composed of CoSi_y or TiSi_y layer which is substantially free from Ge.

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42. (New) The semiconductor device of claim 40, wherein the first group IV element of the first and second gate electrodes is Si, the second group IV element of the first and second gate electrodes is Ge, and the first and second silicide electrodes are composed of CoSi_y or TiSi_y layer which is substantially free from C.

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43. (New) The semiconductor device of claim 37 further comprising:
 first elevated electrodes formed on the first conductivity type main electrodes, and having a fifth region including the first group IV element and the second group IV element and a sixth region formed on the first conductivity type main electrodes via the fifth region and including the second group IV element; and

second elevated electrodes formed on the second conductivity type main electrodes, and having a seventh region including the first group IV element and the second group IV element and a eighth region formed on the second conductivity type main electrodes via the seventh region and including the second group IV element.

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44. (New) The semiconductor device of claim 43 further comprising:
 a first silicide electrode formed in contact with the second region of the first gate electrode, and being substantially free from the second group IV element; and
 a second silicide electrode formed in contact with the fourth region of the second gate electrode, and being substantially free from the second group IV element.

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45. (New) The semiconductor device of claim 44 further comprising:
 third silicide electrodes formed in contact with the sixth region of the first elevated electrodes, and being substantially free from the second group IV element; and

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fourth silicide electrode formed in contact with the eighth region of the second elevated electrodes, and being substantially free from the second group IV element.
